IN THE CLAIMS

We claim:

1. A lithography system comprising:

a reflective liquid crystal display comprising an array of configurable pixels;

a radiation source for directing radiation onto the reflective liquid crystal display;

a projection system for reducing a radiation pattern reflected by the reflective liquid crystal display and projecting the reduced radiation pattern onto a workpiece; and

a stage for holding the workpiece.

2. The lithography system of claim 1, wherein each configurable pixel may be configured to reflect or absorb incident radiation from the radiation source.

3. The lithography system of claim 1, wherein the radiation source is selected from the group consisting of an optical light source, an ultraviolet light source, an excimer laser, an x-ray source, an electron source, and an ion source.

4. The lithography system of claim 1, wherein the reflective liquid crystal display comprises:

at least one front electrode connected to a front substrate;

at least one rear electrode connected to a rear substrate; and

a liquid crystal layer interposed between the front substrate and the rear substrate.

5. The lithography system of claim 4, wherein the front electrode and the front substrate are generally transparent to the radiation emitted by the radiation source.

6. The lithography system of claim 4, wherein the rear electrode is generally transparent to the radiation emitted by the radiation source.

7. The lithography system of claim 4, wherein the rear substrate is generally transparent to the radiation emitted by the radiation source.

8. The lithography system of claim 4, further comprising a reflective layer connected to the rear substrate.

9. The lithography system of claim 4, wherein the at least one rear electrode reflects the radiation emitted by the radiation source.

10. The lithography system of claim 4, wherein a plurality of rear electrodes are connected to the rear substrate, each electrode having a reflective surface configured to reflect radiation emitted by the radiation source.

11. The lithography system of claim 10, wherein the reflective surfaces of the rear electrodes are substantially co-planar.

12. The lithography system of claim 4, further comprising a polarizing layer connected to the front substrate.

13. The lithography system of claim 4, further comprising a polarizing layer connected to the rear substrate.

14. The lithography system of claim 4, wherein a plurality of front electrodes are structured in substantially parallel rows.

15. The lithography system of claim 4, wherein a plurality of reflective rear electrodes are arranged in a substantially planar two-dimensional array.

16. The lithography system of claim 4, wherein a plurality of reflective rear electrodes are arranged on a plurality of planes, thereby forming a three-dimensional array of reflective rear electrodes.

17. The lithography system of claim 4, wherein the at least one rear electrode is formed as a reflective electrode electrically connected to an integrated gate transistor structure formed on the rear substrate.

18. The lithography system of claim 17, wherein electrode through substrate addressing is used to selectively apply voltage to the at least one rear electrode.

19. The lithography system of claim 1, wherein the reflective liquid crystal display comprises:

at least one front electrode connected to a front substrate;

a plurality of reflective rear electrodes electrically connected to an integrated gate transistor structure formed on a rear substrate, wherein electrode through substrate addressing is used to selectively apply voltage to each rear electrode; and

a liquid crystal layer interposed between the front substrate and the rear substrate.

20. The lithography system of claim 19, wherein the plurality of reflective rear electrodes are arranged in a substantially planar two-dimensional array.

21. The lithography system of claim 19, wherein the plurality of reflective rear electrodes are arranged on a plurality of planes, thereby forming a three-dimensional array of reflective rear electrodes.

22. The lithography system of claim 19, wherein the rear substrate is silicon.

23. A method for projecting a radiation pattern onto a substrate, the method comprising:

providing a reflective liquid crystal display comprising an array of configurable pixels;

configuring each pixel to a state in which incident radiation is either reflected or absorbed;

providing a radiation source;

directing radiation from the radiation source onto the reflective liquid crystal display, thereby generating a reflected radiation pattern;

reducing the reflected radiation pattern; and

projecting the reflected radiation pattern.

24. The method of claim 23, wherein the reflected radiation pattern represents a portion of an integrated circuit device and the reflected radiation pattern is projected onto a semiconductor substrate.

25. The method of claim 23, wherein the radiation source is an optical light source, an ultraviolet light source, an excimer laser, an x-ray source, an electron source, or an ion source.

26. A method for projecting a plurality of geometrically distinct radiation patterns onto a substrate, the method comprising:

providing a reflective liquid crystal display comprising an array of configurable pixels;

forming a first image pattern on the reflective liquid crystal display;

directing radiation from a radiation source onto the reflective liquid crystal display, thereby generating a first reflected radiation pattern;

reducing the first reflected radiation pattern;

projecting the first reflected radiation pattern onto a first portion of the substrate;

forming a second image pattern on the reflective liquid crystal display;

directing radiation from a radiation source onto the reflective liquid crystal display, thereby generating a second reflected radiation pattern;

reducing the second reflected radiation pattern; and

projecting the second reflected radiation pattern onto a second portion of the substrate.

27. The method of claim 26, wherein the first image pattern represents a portion of a first integrated circuit device and the second image pattern represents a portion of a second integrated circuit device.

28. The method of claim 26, wherein the second image pattern is smaller than the first image pattern.

29. A method for projecting for projecting a repeating radiation pattern onto a substrate, the method comprising the steps of:

providing a reflective liquid crystal display comprising an array of configurable pixels;

scrolling a repeating geometric pattern across the reflective liquid crystal display in a first direction;

providing a radiation source;

directing radiation from the radiation source onto the reflective liquid crystal display, thereby generating a continuously varying reflected radiation pattern;

reducing the reflected radiation pattern;

projecting the reflected radiation pattern onto a substrate while moving the substrate in a direction opposite the first direction, such that a repeating radiation pattern is continuously imaged across the substrate.

30. The method of claim 29, wherein the repeating radiation pattern represents a portion of a electrical circuit on a flat panel display.

31. The method of claim 29, wherein the radiation source is an optical light source, an ultraviolet light source, an excimer laser, an x-ray source, an electron source, or an ion source.